

## **REMARKS**

Claims 24, 27-29, 32, and 33-37 are pending. The Examiner's reconsideration of the rejections is respectfully requested in view of the remarks.

Applicants appreciate the Examiner's indication that Claims 26 and 31 are allowed.

The drawings have been object to under 37 CFR 1.83(a). The Examiner suggested that the limitation of independent Claims 24 and 29 stating "upon a switch from a first grey state to a second grey state of each pixel" be shown or the feature(s) cancelled from the claim(s).

Claims 24 and 29 claim, *inter alia*, "supplying the swinging common electrode voltage having an overshoot voltage to the common electrode lines upon a switch between the first polarity and the second polarity of each pixel, wherein levels of transmission in response to the first data voltage and the second data voltage are shifted in response to the overshoot voltage to be superimposed during the switch."

It should be noted that the overshoot effect is a component of the swinging common electrode voltage  $V_p$  during the switch. Thus, at least Figure 5 shows such "supplying the swinging common electrode voltage having an overshoot voltage to the common electrode lines upon a switch between the first polarity and the second polarity of each pixel, wherein levels of transmission in response to the first data voltage and the second data voltage are shifted in response to the overshoot voltage to be superimposed during the switch." For example, see the average voltage  $V_p$  supplied to the pixel (the overshoot effect is a component of  $V_p$  (see page 8, lines 6-12, and Equation 2)), wherein  $V_p$  transitions to a minimum voltage simultaneously with the swing voltage  $V_{com}$  in the first cycle following a pulse in  $V_g$  – compare Figure 4 wherein

the voltage does not stabilize until the second cycle after a pulse in  $V_g$ .

Reconsideration of the objection is respectfully requested.

The specification has been objected to as failing to provide proper antecedent basis for the claimed subject matter; the Examiner suggested that the limitation of independent Claims 24 and 29 stating “upon a switch from a first grey state to a second grey state of each pixel” is not supported by the specification.

Claims 24 and 29 claim, *inter alia*, “a switch between the first polarity and the second polarity of each pixel.”

Respectfully, Applicants point to at least page 8, line 6 to page 9, line 8, as describing the claimed switch between the first polarity and the second polarity of each pixel.

Reconsideration of the objection is respectfully requested.

Claims 24, 27-29, and 32-25 have been rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. The Examiner has suggested that the limitation of independent Claims 24 and 29 stating “upon a switch from a first grey state to a second grey state of each pixel” is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time of the application was filed, had possession of the claimed invention.

Claims 24 and 29 claim, *inter alia*, “supplying the swinging common electrode voltage having an overshoot voltage to the common electrode lines upon a switch between the first polarity and the second polarity of each pixel, wherein levels of transmission in response to the

first data voltage and the second data voltage are shifted in response to the overshoot voltage to be superimposed during the switch.”

Respectfully, Applicants point at least to Figures 5, 8 and 9, and page 8, line 6 to page 9, line 8, as describing the claimed switch between the first polarity and the second polarity of each pixel. Further, a plurality of exemplary operations including the overshoot effect upon a switch between the first polarity and the second polarity of each pixel, are given from page 15, line 5 to page 17, line 14. The Examiner’s reconsideration of the rejection is respectfully requested.

Claims 24 and 29 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. (USPN 6,429,842) in view of Kim (USPN 6,400,424), and further in view of Kawaguchi (USPN 6,677,925). The Examiner stated essentially that the combined teachings of Shin, Kim, and Kawaguchi teach or suggest all the limitations of Claims 24 and 29.

Claims 24 and 29 claim, *inter alia*, “supplying the swinging common electrode voltage having an overshoot voltage to the common electrode lines upon a switch between the first polarity and the second polarity of each pixel, wherein levels of transmission in response to the first data voltage and the second data voltage are shifted in response to the overshoot voltage to be superimposed during the switch.”

As noted in the Office Action, Shin and Kim do not show a common electrode voltage for storage applied to the plurality of common electrode lines is swung in a predetermined direction. Further, the combined teachings of Shin and Kim fail to teach or suggest “supplying the swinging common electrode voltage having an overshoot voltage to the common electrode lines upon a switch between the first polarity and the second polarity of each pixel, wherein levels of transmission in response to the first data voltage and the second data voltage are shifted in

response to the overshoot voltage to be superimposed during the switch” as claimed in Claims 24 and 29. Nowhere do Shin or Kim teach or suggest an overshoot voltage, essentially as claimed in Claims 24 and 29.

Kawaguchi teaches a common electrode signal is undershot or overshoot to cause the voltage waveform applied to the common electrode to conform with the rectangular-shaped reference voltage waveform (see col. 18, lines 29-35). Kawaguchi does not teach or suggest that “supplying the swinging common electrode voltage having an overshoot voltage to the common electrode lines upon a switch between the first polarity and the second polarity of each pixel, wherein levels of transmission in response to the first data voltage and the second data voltage are shifted in response to the overshoot voltage to be superimposed during the switch” as claimed in Claims 24 and 29. Kawaguchi teaches an overshoot voltage during a black display. Kawaguchi does not teach or suggest that “levels of transmission in response to the first data voltage and the second data voltage are shifted in response to the overshoot voltage to be superimposed during the switch” as claimed in Claims 24 and 29. Therefore, Kawaguchi fails to cure the deficiencies of Shin and Kim.

The combined teachings of Shin, Kim, and Kawaguchi teach a driving circuit for reversal of liquid crystal voltages. The combined teachings of Shin, Kim, and Kawaguchi fail to teach or suggest that “levels of transmission in response to the first data voltage and the second data voltage are shifted in response to the overshoot voltage to be superimposed during the switch” as claimed in Claims 24, and 29.

Reconsideration of the rejection is respectfully requested.


Claims 27, 28, 32, and 33 have been rejected under 35 USC 103(a) as being unpatentable over Kawaguchi, Shin, and Kim as applied to Claims 24 and 29 above, and further in view of Moon et al. (USPN 6,421,039). The Examiner stated essentially that the combined teachings of Kawaguchi, Shin, Kim and Moon teach or suggest all the limitations of Claims 27, 28, 32, and 33.

Claims 27 and 28 depend from Claim 24. Claims 32 and 33 depend from Claim 29. The dependent claims are believed to be allowable for at least the reasons given for Claims 24 and 29. Reconsideration of the rejection is respectfully requested.

New Claims 36 and 37 depend from Claims 24 and 29, respectively. The dependent claims are believed to be allowable for at least the reasons given for Claims 24 and 29.

For the forgoing reasons, the present application, including Claims 24, 27-29, 32, and 33-37 is believed to be in condition for allowance. The Examiner's early and favorable action is respectfully urged.

Respectfully submitted,

  
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